Response to Amendment

1. The amendment dated 1/27/2011 has been fully considered and entered into the Record. The amended claims overcome the previous new matter and indefinite rejections. The amended claims now recite sufficient structure and provide adequate definition. Claims 22-29 and 33-44 are currently pending. Examiner realizes that this reference has been previously applied and withdrawn; however, following reconsideration of the reference in light of the amendment Examiner feels that Shipp reads on the amended claims. Examiner believes that the instant claims accurately frame the article that is being made by this novel method of manufacture. However, for reasons set forth in this action and in previous actions citing Shipp, Jr. et al. the novel method of making a varied size, permeability, and density filter does not create an article that is itself novel. The claimed article has an increasing fiber size, permeability, and density through its thickness, while allowing for some fiber size variation within a given layer. As shown in the following rejection, this structure is not distinguishable over the prior art.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 22-27, 33, 34, 36, 38 and 40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shipp, Jr. et al. (US 4,714,647) "Shipp."

a. Shipp discloses a method of making a filter medium formed by sequentially depositing melt-blown thermoplastic fibers having the same composition, but differing diameters, onto a collector. The resultant laminate web has a fiber size gradient through its depth (increasing or decreasing in size depending on the direction) so that large particulate can be trapped through the filter's depth without becoming prematurely plugging the fine fiber, high efficiency layers (abstract). To overcome premature plugging the layers of the filter medium have different densities between layers with the density differences controlled by the use of differing sizes of fibers (col. 2, lines 56-64).

b. The foregoing objective is achieved by a one-step, melt-blown process carried out on a forming line which has multiple die heads spaced along a collecting belt. By varying the process parameters for each die head, to produce microfibers of varying average diameter, a web may be built up of subsequent layers, each having a predetermined and generally different average fiber size. As a result, the first (upstream) layer of the web may have large fiber sizes (extra coarse) and resulting large pore sizes for entrapping large particulate, intermediate layers may have smaller fiber sizes (coarse and medium) for trapping intermediate size particulate, and a final (downstream) layer or layers may

have small fiber sizes (fine) and pore sizes for entrapment of the smallest particulate that passes easily through the layers of larger pore size. As a result, the large and intermediate particulate is trapped in the first and intermediate layers through the depth of the filter, thereby avoiding premature plugging of the upstream surface of the filter medium and the fine final layer (col. 3, lines 50-69).

c. The filter forming process described in Shipp produces at least first and second layered mat portions depending on where the delineation between layers is located. Within each layer and between the layers there is fiber diameter, permeability, and density progression. As shown in the figures there is mixing of fiber diameters within a given layer. Overall, the fiber diameters range from about 0.5 to 10 microns (col. 2, lines 10-33). There is mixing of fiber diameters during the filter forming process there may also be mixing of fibers between layers depending upon where the delineation between layers is marked. Claim 24 is rejected as the layers are combined in a successive manner on the foraminous belt. The fiber size of within the filter media is progressive and all fiber diameters of Shipp fall within the claimed diameters ranges of Applicant. Claim 27 is rejected as regardless of where the layers are delineated within the article the fiber diameters would fit within the claimed ranges. Claim 40 is rejected the Figures illustrate that some of the fibers are curled and entangled.

d. Shipp points out that the forming line process used to make his gradient filter may be replaced with collecting drums to form the same melt-blown gradient filter (col. 1, lines 15-23) because as each layer is formed on the collecting drum and sequentially layered the filter formed is structurally the same as one having multiple layers formed on

a foraminous belt . "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to Applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 218 USPQ 289, 292.

Claim Rejections - 35 USC § 103

3. Claims 39 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shipp, Jr. et al. (US 4,714,647).

a. Claims 39 and 41 are rejected as Shipp teaches the formation of a three-layer filter media and it would have been obvious to one of ordinary skill in the art to have manipulated the fiber size distribution and porosity depending on the desired functionality of each of the fiber layers and decrease the overall pressure drop of the media by providing additional surface area to entrap particles of a given size preventing premature plugging.

b. Claims 42-44 are rejected as one of ordinary skill in the art would have recognized fiber size distribution may be manipulated to maximize the performance of the filter media. The filter of Shipp is formed from extruded thermoplastic fibers and would be "smooth" on their surface.

4. Claims 28, 29, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shipp, Jr. et al. (US 4,714,647) as applied to claims 23 and 33 above, and further in view of Airflo (EP 0 960 645 A2). Shipp fails to provide for specific permeabilities or porosities.

a. The EP '645 reference relates to a disposable vacuum cleaner bag composition. The reference discloses a three-layer vacuum cleaner bag construction (refer to Figure 4) that comprises a filtration grade meltblown layer with fibers with diameters in the range of 1-15 micrometers and air permeability of 100-1500 L/(m^2 x s) [12.3-185 cfm/ft^2)and a high bulk meltblown layer with fibers with diameters in the range of 5-20 micrometers and an air permeability of 300-8000 L/(m^2 x s) [36.9-492cfm/ft^2] (Table 1). The range of diameters for the fibers within each layer anticipates the claim limitations of varied fiber sizes and the media's resultant permeability and porosity within each layered mat portion. With regards to the mode the meltblown material is produced, refer to [0054] in which the reference teaches attenuating the filaments upon formation. As shown in the Figures the layers of the filter media may be combined in a successive manner and would intersperse when adjacent layers are bonded together.

b. Shipp and Airflo are from the same field of endeavor (i.e. filters).

c. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have looked to Airflo for guidance as to permeabilities that would allow for successful filtration.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Chriss can be reached on 571.272.7783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1786

/Norca L. Torres-Velazquez/
Primary Examiner, Art Unit 1786